Riflescope Instruction Manual

SIGHTRON™

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Introduction to Sightron Scopes

Congratulations on the Purchase of your new Sightron Scope. Sightron is a leader in developing new products for the outdoor enthusiast. Our Patented ExacTrack™ windage and elevation system and Zact-7™ 7 layer Fully Multi-Coating provides performance found in other products costing hundreds of dollars more. Sightron Riflescopes, Binoculars, Spotting Scopes and Electronic Sighting Devices are the finest products on the market and are backed by Sightron's Lifetime Warranty. This instruction manual is designed to provide you with the proper fundamentals for using your Sightron Riflescope.

If you have any questions please feel free to contact us at info@sightron.com on the web, or 919-562-3000.

Riflescope Features

Sightron produces several variations of Riflescopes, you should become familiar with the features of your particular scope before mounting. Since many people purchase a product via mail order it is also a good idea to check your scope to make sure you have received the model you ordered and it indeed is the correct product you wanted. Note: Most Dealers are willing to exchange a riflescope that has not been mounted if it is not the correct model. However, after mounting is not the time to notice your scope is not the correct model.

Fixed Power Riflescope

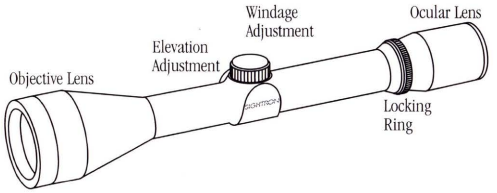

Figure 1

Variable Power Riflescope

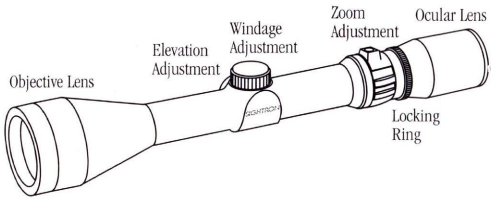

Figure 2

Variable Power Target Riflescope

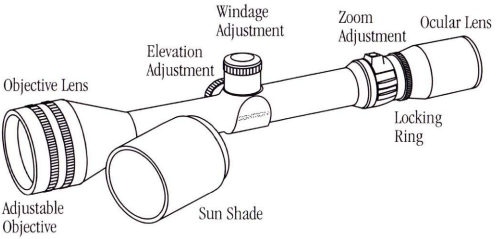

Figure 3

Windage and Elevation Adjustments

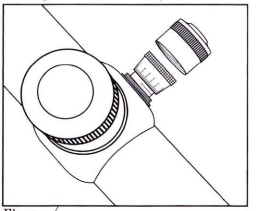

Figure 4

Side Focus Riflescope

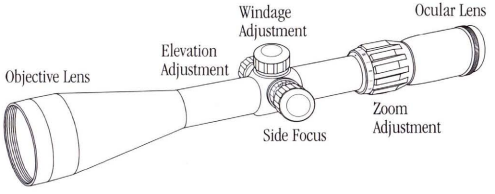

Figure 5

Fast Focus Eyebell

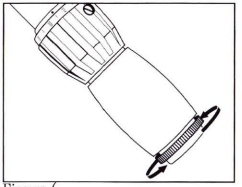

Figure 6

Side Focus

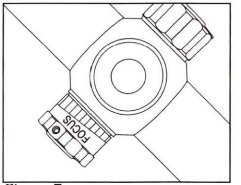

Figure 7

Rear Focus Adjustment

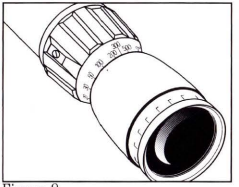

Figure 8

Illuminated Reticle Battery Replacement

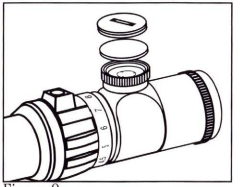

Figure 9

Focusing Your Scope

CAUTION: REMEMBER LOOKING AT THE SUN WITH THIS OR ANY OPTICAL INSTRUMENT COULD CAUSE PERMANENT INJURY TO THE EYE.

CAUTION: Always insure that your weapon is unloaded prior to mounting your scope. Use eye and hearing protection and follow proper safety rules when handling or firing your weapon.

1. All SIGHTRON Fixed and Variable power riflescopes are factory preset for 0 diopters or 20/20 vision.

2. To properly focus the reticle, place your scope approximately 3.50 to 4.00 inches away from your eyes. Make sure you are in an area with proper illumination. Look through your scope at any bright surface or light colored wall, or perhaps the clear sky. You should find the reticle clear and sharp. If you wear

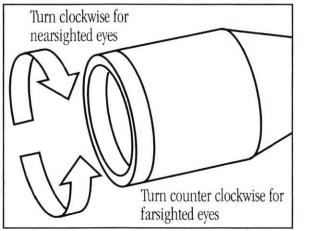

Figure 10

prescription glasses, you must wear them when performing the above procedure. If the reticle is not clear:

SI, SII and SII Big Sky™ Models: Loosen the locking ring and turn or rotate the eyepiece clockwise or counter clockwise as needed. When the reticle appears clear and sharp retighten the locking ring. (Figure 1)

SIII Models: Simply rotate the fast focus eyebell until the reticle appears clear and sharp. (Figure 6)

Parallax (Focus) Adjustment

Parallax is the apparent displacement of an object caused by a change in the position from which it is viewed. For a riflescope to be parallax free the target image must be focused onto the reticle. Almost all Sightron riflescopes are set parallax free at 100 yards. This means targets that are closer or farther from this focal point will show a small apparent movement. The amount of reticle movement is insignificant, and is not of relative concern when using the scope for hunting or casual shooting. For other disciplines of this sport, like competition or precision shooting, the use of a scope with parallax adjustment is recommended.

Target Scopes

Sightron Target Scopes are specially designed for precision shooting. The parallax adjustment assembly on all SII Series Target Scopes is based on a very fine thread with a 720 degree revolution (two complete turns of the Adjustable Objective Ring). This will allow parallax free viewing at any distance, by correctly setting the distance scale ring to the desired setting. The minimum focus distance is as low as 10 yards o some models. For a better and precise parallax adjustment we have set up a double marking system on the distance scale ring, one in white with the proper white marker for short distances. And the other in bronze going from 25 yards to infinity.

Note: On SII Series Adjustable Objective models the white marker is only visible when the objective focus wheel is turned clockwise to focus on near targets.

Note: SII Big Sky™ and SIII LR Series Side Focus Models do not have a distance scale and should be adjusted until the image is clear and parallax free. (Fig. 7)

Note: SIII Fixed Power Tactical scopes have a rear focus adjustment located in front of the eyepiece. (Fig. 8)

Note: All SII Big Sky Riflescopes (objective focus mod-

els) focus from 10 yards to infinity. Simply turn the objective to the desired distance. This model does not use the 720 degree system.

Mounting Your Scope

1. Place both rings on your mount base or receiver, and tighten slightly. Remove the top half of the rings and place the scope in the bottom half of the rings. Once you have determined proper ring spacing (see Figure 11) and eye relief (see Fig. 12), tighten the top half of the rings.

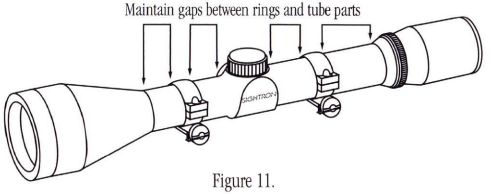

Figure 11.

2. To center the scope, the elevation adjustment knob or assembly, should be directly in alignment with the bore axis of the gun. The windage adjusting knob should then be in a 90°

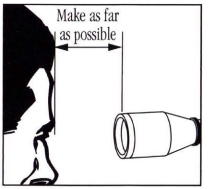

Figure 12.

angle to the right of the elevation adjustment knob, the scope should then be perfectly squared and aligned.

3. The final step will now be to secure the scope by tightening the rings to the mount or receiver.

Sighting In Your Gun

Your new scope has been optically centered at the factory and superior performance will be obtained with minimal adjustment. If you are unable to obtain the services of a qualified gunsmith or do not have access to a collimator, the following procedures will be highly effective and efficient.

NOTE: Most sight in problems are caused by poor ring alignment.

Prior to sighting in and bore sighting it is extremely important to know the windage and elevation specifications of your particular model of scope. As a general rule the more the magnification the less internal adjustment is available. Specifications for Sightron's scopes are located in our annual catalog or on our website. Sightron recommends not using more than 50% of the available adjustment on Hunting Models

or 25% on target Models. If your ring alignment exceeds these adjustment requirements it is recommended that you correct the bad alignment before you begin to adjust your scope.

1. Place a 2 to 3 feet target 50 yards away. Draw or place a 1 inch square at the center. Using a bench rest, fire one shot at the center of the bullseye, then return the gun to the exact position and adjust the reticle to the

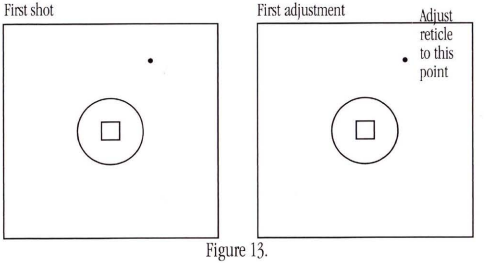

Figure 13.

bullet's point of impact. At this point, fire one more shot at the bullseye. This shot should be within 1 inch of your target center. Make final adjustments as necessary with the next shot (see Fig. 13).

2. The Windage and Elevation click values will vary depending on your model of scope.

The chart below will provide you with the Windage and Elevation movement at the given ranges.

Note: By adjusting the Windage or Elevation knob in the direction of the arrow on the knob it will move the bullet impact in the direction indicated.

Windage and Elevation Movement Table

Click Value	50 Yards	100 Yards	200 Yards	300 Yards
1/8 Minute	1/16"	1/8"	1/4"	3/8"
1/4 Minute	1/8"	1/4"	1/2"	3/4"

Battery Replacement

Certain Models are equipped with an electronic reticle and require a 2032 battery. Depending on your intensity setting and temperature your battery will last between 100 and 400 hours. The colder the environment the shorter the life of the battery.

To replace the battery take a quarter or nickel and place it in the battery slot. Holding the scope in a normal viewing position hold the outer battery housing with one hand while rotating the battery cap in a counter

clockwise position. Place the new battery with positive(+) side up. Rotate the cap clockwise to tighten.
Note: Only a snug fit is required. Do not over tighten.

Re-Zeroing Your Scope

All Sightron SII Big Sky Series and and all Sightron model Target Scopes are re-settable to zero after sighting in your scope.

1. To re-zero all Target Models loosen the Allen screw(s) and remove the knob by pulling up. Then align the zero mark on the knob with the index line on the Revolution scale underneath. Retighten the Allen screw(s).

2. On all SII BIG Sky Series without Target knobs simply pull up on the adjustment dial and rotate the dial to zero then push down.

Using Your Mil-Dot Scope

A "mil" or milliradian is a unit of angular measurement similar to a degree, or Minute-of-Angle (MOA = 1/60th of a degree). In a complete circle, there are 360 degrees, 21,600 MOA or 6,283.2 mils. A mil-dot reticle uses the angle measured by a milliradian to calculate the range to an object when the target size is known.

Target can also be calculated if the distance is known. In addition to actingas a rangefinder, the mil-dot reticle can also be used to hold off horizontally for wind correction or vertically to compensate for bullet drop at longer distances.

Milliradian usage is not complicated, though it may seem so at first. Basically, one "mil" equals 1 unit at 1000 units of distance. So a 1" object will occupy 1 mil of space on the reticle when it is 1000 inches away.

1 "mil"= { 3.6" at 3600 inches (100 yards)
1 foot at 1000 feet
1 yards at 1000 yards
1 meter at 1000 meters

For those thinking in terms of Minute-of-Angle (MOA), 1 mil = 3.438 MOA.

While using a scope with a mil-dot reticle to view a target, the shooter determines the amount of space the oblect covers on the reticle. It is necessary to determine that space to at least 0.1 mil accuracy, or preferably to the 0.05 mil. For instance, if a 30" object covers 1.15 mils when viewed through the scope, some shooters may see this as 1.1 mils or 1.2 mils. This will lead to a

slight error in the range estimation, but likely not enough to miss the target. Accurate "milling" only comes with practice and a good eye.

To demonstrate (formulas below):

Shooter 1 estimate:

(30" target/**1.1 mils**) x 27.78 = **757.6 yards**

Actual size:

(30" target/**1.15 mils**) x 27.78 = **724.7 yards**

Shooter 2 estimate:

(30" target/**1.2 mils**) x 27.78 = **694.5** yards

Notice the error is approximately 30 yards if the mil value is not correct to the 0.05 mil. Most times this will not result in a miss, but it is best to make as accurate a "mill-call" as possible. Dots and hashes within the mil-dot reticle help the shooter accurately gauge the distance a target covers on the reticle. The smaller the gap between each mark, the more accurately one can gauge he proper mill-value.

The distance between the center of each dot is 1 mil. To get a more concrete measurement, some may prefer to use the edges of the dots instead of the center. So top-edge to top-edge would be 1 mil, right-edge to right-edge would be 1 mil and so on.

Ranging formulas:

$$\frac{\text{Height of target (in.)}}{\text{mils(covered by object)}} \times 27.78 = \text{distance to target (yards)}$$

$$\frac{\text{Height of target (in.)}}{\text{mils(covered by object)}} \times 25.40 = \text{distance to target (meters)}$$

$$\frac{\text{Height of target (meters)}}{\text{mils(covered by object)}} \times 1000 = \text{distance to target (meters)}$$

$$\frac{\text{Height of target (cm.)}}{\text{mils(covered by object)}} \times 10 = \text{distance to target (meters)}$$

Maintaining Your Scope

Your new Sightron Scope will provide you with a life time of enjoyment. Keeping your lenses clean is important and dirt or improper cleaning can degrade the image or destroy the coatings. To clean your lenses first make sure any dust is removed by using a lens pen brush or camera brush to remove loose particles of dirt or dust. A camera cleaning kit is very inexpensive at available at most department stores. Do not use water or window cleaning products to clean lenses as the minerals will remove the lens coatings.

NOTE: Never use your scope as a lever to twist rings into proper placement. Damage to scope structure and/or functions may occur. Whenever you are uncertain of proper mounting procedures or gun related issues, seek the advice of a qualified gunsmith or any other trained personnel.

Servicing Your Scope (USA only)

Should your Sightron scope ever require service, please package it securely and ship it to:

Sightron. Inc.
100 Jeffrey Way
Suite A
Youngsville, NC 27596

1. Please include a detailed description of the problem.
2. Include your daytime telephone number and/or your email address (if available),
3. Remove all rings, caps and sunshades. Return the riflescope or binoculars ONLY.

Servicing Your Scope (Outside USA)

Please contact Sightron at info@sightron.com or call us at 919-562-3000. You may also contact the distributor in your country. For a complete listing of International Distributors visit www.sightron.com.

Sightron, Inc. Products
Lifetime Limited Warranty

Sightron, Inc., will repair this product or replace the product, at Sightron's sole option, free of charge (except for a $7.50 handling charge). This warranty only covers failure due to defects in materials or workmanship which occur during normal and regular use. It does not cover damage which occurs in shipment or failures which are not supplied by Sightron, Inc., or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification or service by anyone other than a Sightron, Inc. factory or authorized service center or damage that is attributable to acts of God.

There are no express warranties except as listed above. SIGHTRON, INC. SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations may not apply to you. This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

If a problem with this product develops during or after the warranty period, you should contact Sightron, Inc. your dealer or return your product with a brief explanation of the problem you are experiencing.

Please include your complete shipping address and your daytime telephone number so we may contact you if necessary

Glossary

Adjustable Objective - An Objective lens that is adjustable for focus at varying distances. Sightron Adjustable Objectives can focus as low as 30 feet in infinity depending on the individual model.

Elevation Knob - The adjustment knob on top that adjusts the bullet impact up and down in the vertical plane when mounted in the traditional manner (elevation knob on top and windage knob on the right side as seen from the shooting position).

Eye-Relief - The distance from the rear of the objective lens to the eye as measured with a full field of view in the riflescope.

Fast Focus Eyebell - A type of eyebell focus that allows the ocular lens assembly to rotate independent of the eyebell assembly. This feature allows for quicker reticle sighting adjustments.

Objective Lens - The front lens of a Riflescope, usually the larger of the two outermost lenses of the Riflescope. The object lens is a critical factor in determining resolution and light transmission characteristics.

Ocular Lock Ring - The Lock ring on the rear of the scope that tightens against the Ocular Lens Assembly to prevent movement.

Ocular Lens Assembly - The lens group at the rear of the scope that allows your eye to focus on the reticle.

Parallax - Parallax is the effect of lack of proper adjustment between the image and the reticle. For a riflescope to be parallax free the target image must be focused onto the reticle. Almost all riflescopes are pre-set parallax free at 100 yards. This means, targets that are closer or farther from this focal point, the scope reticle will show an apparent movement. However, the amount of reticle movement is insignificant, and is not of concern when using the scope for hunting or casual shooting. For other disciplines of this sport, like competition or precision shooting, the use of a scope with parallax adjustment is recommended. This will allow anyone to be parallax free at any distance, by correctly setting the focus adjustment ring to the desired range on the scale ring.

Reticle Selector Knob - The knob on the left side of an Electronic Sighting Device that changes the reticle pattern.

Rheostat Switch - The switch found on Electronic Sighting Devices and illuminated reticle scopes that house the battery. This switch also controls the light intensity and is adjustable.

Side Focus Knob - An adjustable knob usually found on theleft side of the scope that changes the focus of the image as viewed through the riflescope.

Variable Power Ring - The ring in the back of the scope that changes the magnification.

Windage Knob - The adjustment knob on the right side that adjusts the bullet impact left and right in the horizontal plane when mounted in the traditional manner (elevation knob on top and windage knob on the right side as seen from the shooting position).

Notes

Notes

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